### **Chapter 56**

## The use of ICT's in the COVID-19 pandemic: pedagogical coordinators and teachers between commitment and chaos

Scrossref 💩 https://doi.org/10.56238/devopinterscie-056

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#### ABSTRACT

This article aims to reflect on the use of information and communication technologies - ICTs by teachers and pedagogical coordinators of the public education network, considering the current scenario of the Covid-19 Pandemic and reports the experiences as a teacher and coordinator of the Public Network of Education in the state of Mato Grosso do Sul. The text is divided into two parts: the first presents a contextualization of teacher training and the use of ICTs in the Covid-19 Pandemic; the second presents the account of experiences and practices as a teacher and coordinator of the public education network during the pandemic period. We sought to dialogue with theorists to promote reflections on issues observed during the challenges of the work of teachers and pedagogical coordinators in the pandemic period, in which these professionals exercised and exercise numerous functions inside and outside the school unit, as they feel unmotivated, helpless, and frustrated in their work.

**Keywords:** Technologies, Teacher, Coordinator, Pandemic, Practice.

#### **1 INTRODUCTION**

#### Teacher training and the use of ICTs

Não podemos acrescentar dias a nossa vida, mas podemos acrescentar vida aos nossos dias (Cora Coralina).

The use of information and communication technologies (ICTs) for educational purposes "presents itself as a new barrier to be overcome by teachers" (Schuhmacher et al., 2017, p. 565). However, Lévi (1999) argues that new technologies should be employed to enrich the educational environment. And teachers, to comply with the new requirements, that is, "to deal with this insertion in the educational scenario", need "new knowledge and skills to critically deal with ICTs in their teaching day to day" (apud Schuhmacher et al., 2017, p. 564).

Bonilla (in Batista e Pesce, 2018, p. 98) states that: "it is urgent to empower oneself, in the universe of digital literacy, to be able to take a critical stance and adopt a use of technological resources, which are in line with the full experience of digital literacy". digital culture". To this end, Filho & Schuhmacher (2017) state that one of the biggest barriers to the use of ICTs within the school environment refers to the physical

infrastructure of the school and that the lack or insufficiency of support is also aggravating the teacher who intends to adopt it. them in their daily lives. For the authors, "the barriers result from previous learning" (FILHO & SCHUHMACHER, 2017, p. 565), since, in their studies, they identified diagnoses that indicate that insecurity and deficiency in the necessary skills are important factors to be considered.

Batista and Pesce (2018, p. 90) point out that the initial and continuing education of teachers becomes current and urgent, even more so given the paradigm shift in which the relationships between Digital Information and Communication Technologies (TDICs) and the contemporaneity. For these authors, "we live in a moment of great changes, changes that are notable for the avalanche of uses of digital technologies" (BATISTA and PESCE, 2018, p. 97). Especially in this period when we are experiencing a pandemic and the context of teaching has become distance learning, hybrid, and/or remote.

Adorno (in LINHARES e LINHARES, 2018, p. 252) says that "overcoming this process can only be achieved by education focusing on cultural formation". And, in the words of Santos, "training is a phenomenon that is configured in a deep and expanded experience of the practitioner who learns interactively, in a meaningful way, immersed in a culture, in a society, as a production of subjectivities" (SANTOS, 2018, p. 161).

We seek in Freire (in LINHARES and LINHARES) the statement that:

the state of oppression and domination in which people who are subjected to adaptation to the sociocultural conditions of the world they live in live, can be changed by being themselves, in communion with their peers involved with the cultural elements that surround them through education as a practice of freedom. A project whose essence is a humanizing process made possible by the search and knowledge through reflective practices that guide the unveiling of reality, revealing the conditions of its concrete existence and the need for its transformation (LINHARES E LINHARES, 2018, p. 253).

Currently, to exercise the role of teacher and pedagogical coordinator in the public education network, these professionals already needed (before the pandemic) to master the operation of equipment, programs, virtual environments, and means of information and communication technology, even more, necessary after the beginning of the COVID-19 pandemic, which changed the world. Although this disease was first identified in Wuhan, in the province of Hubei, People's Republic of China, in December 2019, it was only in March 2020 that it effectively impacted the routine of Brazilian schools, as School classes were suspended due to the risk of contagion with the coronavirus.

Due to the COVID-19 pandemic, over 90% of schools across the world have adopted some form of policy or method of remote learning where they seek to "reimagine education" by leveraging technology. In remote teaching, teachers and students need to interact through virtual platforms, in this sense, ICTs potentially facilitate the sharing of information, enable new forms of relationship and communication, and allow the exploration of new didactic strategies and possibilities for pedagogical interventions. (SAINTS, p.18)

Some measures were taken in anticipation of school holidays and various holidays. Some secretariats created their resolutions and regulations for the resumption of activities with the delivery of

printed activities and diversified services using various resources and platforms, and education professionals obtained knowledge among their peers, in their daily practice or through private training, as they did not training was offered to carry out their functions. We highlight that only teachers and coordinators who are part of the state education network in Mato Grosso do Sul, participated in the year 2020 in an orientation to use the Google Classroom resource in their classes.

Santos (2021, p.17) highlights that

In Basic Education, ICTs also known as Digital Information and Communication Technologies (TDICs) are classified as the 5th competence, of the general competencies of Basic Education present in the National Common Curricular Base (BNCC) that must be developed by students, ensuring them the right of learning about: [...] 5 - Understand, use and create digital information and communication technologies in a critical, meaningful, reflective and ethical way in the various social practices. (SAINTS, 2021, p17)

Linhares and Linhares (2018, p. 256) point out that "the socio-educational and constitutive spaces of knowledge, especially the school, is a sowing field for the emancipatory power emanating from knowledge". These authors also point out that "the production and socialization of information in/through digital technologies, such as the resources and environments of the internet, is an expressive part of this movement" (Linhares and Linhares, 2018, p. 254), because at the same time, they provide different possibilities in the scope of production, consumption, and distribution, and enable, according to Linhares (2008, p. 22), "new ways of knowing and doing, in the path of collaboration, sharing ideas, values, cultures, expanding the perceptions of the world, the other and himself".

However, Andrade (in LINHARES e LINHARES, 2018, p. 254) emphasizes that "this information system can generate an opposite movement when it produces an avalanche of superficial information that makes it difficult for the user to absorb or criticize". We cite as an example the search for knowledge on the internet, which, if not mediated and guided, can suffer interference from erroneous, summarized, superficial and misleading concepts, such as Fake News.

Therefore, the purpose of this article is to reflect on the use of ICTs by teachers and pedagogical coordinators in their daily practices during the pandemic period. Also, to report the experiences lived as a teacher and coordinator of the Public Education Network in the municipality of Jardim-MS.

### 2 TEACHERS AND PEDAGOGICAL COORDINATORS IN MS SCHOOLS: HOW IS THE USE OF NEW TECHNOLOGIES IN PRACTICE?

We live culturally surrounded by "various languages, forms of expression and representation of knowledge through information and communication technologies" (LINHARES e LINHARES, 2018, p. 256), and, therefore, understanding the functioning of digital culture is fundamental for us to integrate into the context of the 21st century.

The "technologies are composed of open interfaces that allow the user to handle information and in this movement enhance the development of cognitive and communicative actions that transform it into knowledge" (LINHARES and LINHARES, 2018, p. 256).

the use of technologies in the school context does not always pursue the route of dialogue between the subjects mediated by the information/object of knowledge considering the needs of the student and the context in which he lives and works, but rather, that of an ideal of education – read- if schooling – based on the limits of teaching school contents and unfocused on the critical analysis of reality. Thus, like teaching methodologies, the evaluation model, and other processes in the school context, the use of digital technologies in cyberculture, its conception, whether as a means or instrument, with a conservative ideology or as an emancipatory device in the mediation of information, teaching, and learning lies following the educational conception and organization that the school adopts (LINHARES and LINHARES, 2018, p. 258).

The municipality has six municipal schools that serve from kindergarten to elementary school II and three state schools that serve from the fifth to the third year of high school, technical courses, as well as youth and adult education. In order to understand the demands that fall on teachers and coordinators of public schools in Jardim in their daily lives, we need to show what functions they perform: a) Coordinators are trainers in their schools, carry out pedagogical journeys and other training; use technological tools to view/monitor/correct/approve plans online; carry out approval/frequency/dropout surveys; insert and access the Pedagogical Political Project (PPP); feed the Direct Money at School Plan (PDDE); consult the School Rules; prepare/set up electronic equipment for use by teachers to record their classes and fill in their worksheets; read e-mails, internal communications and memos; use technological equipment (notebook, cell phones, etc); participate in training through the virtual learning environment (AVA) in Moodle; monitor the indexes of external evaluations on official MEC websites and on private websites, such as QEdu and Inep, among others; prepare a work plan; coordinate and fill in class council worksheets; monitor and evaluate the results of students' school performance; they analyze the curriculum; they provide pedagogical advice to teachers; monitor and guide planning; analyze internal indicators of frequency and assessment of student learning; they print activities, receive activities, take and pick up activities from students' homes, prepare and propose projects aimed at improving learning; meet demands inside and outside the school via WhatsApp, emails, online conversations and meetings (via Zoom, Google Meet, Hangout, Google Duo, etc.), Google Classroom, web conferences, among others; b) In the work of teachers, we highlight that they participate in online and face-to-face pedagogical meetings, analyze indices and results of a pandemic year, suffer demands for improvements in these indices, prepare online planning, send to the system, prepare/send /correct the Complementary Pedagogical Activities, henceforth APC, send to the coordinator's email – who approves, organize WhatsApp groups of the classes with the lists (prepared by those responsible for school registration), send notices, send classes in videos and activities in the WhatsApp groups of the classes, in Google Classroom, some help in printing activities for the student to pick up at school (extrapolated quotas, lack of paper and ink for printers), organization of spreadsheets to control students who post photos of the APCs in the groups WhatsApp, send and deliver the APCs to the

school to be corrected, enter the Classroom to interact, interact on WhatsApp, record videos and audios for To interact, call families to pick up students, deliver and pick up activities at students' homes, are in classrooms through online classes on Google Meet, Google Classroom and other apps.

It is important to highlight that there was a law in MS that prohibited the use of smartphones in schools - Law n° 2.807 of 02/18/2004 recently revoked by Law N° 5490 of 02/06/2020), and I emphasize that it is an important instrument for classes today. Therefore, I ask: how many WhatsApp groups is a teacher part of? Let's describe some: The official school group, the group of all teachers, the group of teachers by stage - because there are teachers who teach in secondary and elementary education, the group of teachers together with the teachers who have students with special needs and need support, the group of teachers only to develop activities in an interdisciplinary way, the group of each class in which he teaches classes, among others. This is all from a school. If the teacher works in another school, we double or even triple this account.

We cannot forget the figure of the coordinator, who is in all the groups mentioned above and there is even more the group of coordinators and directors of the school, the group together with the administrative team of the school office. In Mato Grosso do Sul we have the reality of the regional coordinators of the state education network, which are central units of the state secretariat that also have sectors and their WhatsApp groups that provide guidelines and documents daily and school coordinators and directors are in all these groups too.

Faced with so many tasks, demands, and charges, we observe that the internet is used as a technological resource for advancing knowledge and work; technological resources are allies of the process of acquisition and mediation of knowledge; considered of great importance for the social and school context. For Dalila Oliveira (in BATISTA and PESCE),

The teacher, because of the varied functions that the public school assumes, has to respond to demands that are beyond his/her training (...) school. (BATISTA and PESCE, 2018, p. 95).

For Gomes and Zuin (2017, p. 204), currently "teachers exchange messages and talk to each other via WhatsApp during the weekends" and point out that when teachers use WhatsApp outside of their working hours to resolve issues related to school, "are losing their labor rights because their workdays are carried out in their respective homes so that they are charged for their performances many times at any time of the day or night" (GOMES and ZUIN, 2017, p. 204), that is, coordinators and teachers are overcoming their workday, as the exercise of their functions exceeds the limits of space and time, characterizing degradation of the condition of the teaching profession. According to Tardif (2013):

within the scope of the OECD, all studies and research highlight a very clear tendency towards prostration, diversification, and complexification of teaching work. Researchers speak of an intensification of teachers' work. This intensification is characterized by: 1) the obligation of teachers to do more with fewer resources, 2) a decrease in the time spent with students, and 3) the diversification of their roles (teachers, psychologists, police officers, parents, motivators, among others). ), 4) the obligation of collective work and participation in school life, 5) the increasingly

heavy management of public school students in difficulty, 6) finally, the growing demands of political and public authorities on teachers who must behave like industry workers, that is, act like a flexible, efficient and cheap workforce (TARDIF, 2013, p. 563).

# **3 WHAT HAS CHANGED IN THE WORK OF TEACHERS AND COORDINATORS DURING THE PANDEMIC PERIOD?**

What moment is this? We thought it would soon pass, but it's not quite like that, because it's been over a year and the doubts and problems only increase. Schools are closed by decrees and more decrees. Open for duty. They close for duty. They receive students for presentations. Cancel the presentation. They serve in the staggered hybrid format (the classes are divided with a scale for face-to-face and non-face-to-face classes). They are operating guidelines that change from moment to moment.

And now? Did it get worse? After a year of the pandemic, families have already assumed that they are not concerned with learning, they value their lives. Other families question and blame the teachers because their children don't learn, teachers don't post videos, they only send audios, they don't charge or don't return corrected activities. We are in the midst of the chaos of uncertainty and dissatisfaction.

Teachers are overworked. The functioning of the school today has to go beyond some limits never before imagined. It is not a problem with distance education. It is more than that. It supports. It's social. It's emotional. It's financial.

The cell phone spends 24 hours receiving messages with video classes, photos, links, spreadsheets, complaints, requests, and documents, among others. Teachers who do not have fast internet, notebooks, smartphones, headphones, cameras, tripods, and lamps, had to adapt. They didn't have many options, either they use the precarious infrastructure of the school or they assume countless monthly installments.

What about students who don't have internet? Don't have smartphones or notebooks? As is the case with many students, I would say most of the public school system, we cite as an example those who live in rural areas who receive their activities printed by school transport. However, the examples cited are not isolated cases because there are students neighboring the school who do not have internet, so we emphasize that our education is excluding, it is leaving out many students, some only have a cell phone without technological resources and many do not even have a notebook to use. do your activities.

In reality, it happens like this, the school prints the activities, and the students remove and return them blank. And I report this sequence because I am a classroom teacher and coordinator in 2021, so I live in two realities. In the morning, I am an effective sixth-grade elementary school teacher in two schools to complement my workload, as the municipal network will not offer elementary education II and has already delivered the seventh to ninth-grade classes to the state network; in the afternoon I am a pedagogical coordinator (effective teacher approved in an internal selection process for a pedagogical coordinator in 2019 - before the pandemic) from the fifth to the ninth grade in the state network, which is finalizing its fifth grade and 2021 classes, as it will no longer offer elementary school I

It is not an easy situation to experience. As a teacher, I have extreme realities. Students who record videos and audio interactions, in which they report on the texts they read in the activities, who carry out their activities with ease, request books to read, a situation in which I was surprised because I suggested the files of an online library through WhatsApp, among others. them the work "The Little Prince" and the student informed using audio (WhatsApp) that he has already read that title six times. At the same time, in the same school and class, I received, early one morning, the images of the answers to the activities on strips of notebook paper, and I asked the student if she could answer on the same sheet, she replied that she was using pieces of paper from the notebook used in the previous year. What to say? I bought a notebook and made an appointment with her the same morning and handed over the notebook with pencils and pens. She didn't want me to go to her house, we agreed on a nearby avenue. I waited in the car and only recognized her by imagining that she would be that little girl approaching my car because classes started in March and were already remote. I didn't know my students. I was intrigued, of course, because it has a smartphone and internet, I don't know if it's Wi-Fi from relatives or neighbors, acquaintances, or a free operator data package because we know that WhatsApp is free on some operators, which facilitates the interaction of some students. However, I looked for the school to present the situation and was informed that there were school kits left over from the previous administration. More intrigued and felt guilty that the management and us teachers at the school don't care how these students would accomplish their tasks.

If the work that the teacher has to plan, elaborate, correct, and perform interaction and feedback was not enough, we still have to manage the mismanagement of the school and the secretaries. That at the end of the first two months and after a pandemic year, they still have not distributed school materials to students.

Indago: where is the budget for students? We have closed schools with a reduction in spending on water, energy, and maintenance, a reduction in cleaning staff, a reduction in cleaning products for over a year, and our students without notebooks!

I emphasize that students could respond on the same sheet on which the tasks are sent, but the school does not have a suitable printer and the activities are printed in font number ten, with no space for answers between one question and another, two pages per sheet (front ) and fast draft print quality. The back of the sheet could even be used as a space for the answers, but I confess that with the poor quality of the print, it does not promote any stimulus, as they are unable to read and develop what is being presented.

How to solve this problem in the middle of the first two months in the middle of the pandemic? I started to print the APCs at home in size 12, with spaces for answers and colored images of the different textual genres presented, that is, the expense is the teachers. I create videos on the play games app - I learned from a video of a teacher teaching how to use this resource in one of the groups of teachers I belong to. However, I affirm that only those students who have access to the internet and to the WhatsApp group are assisted.

I emphasize, however, that in this article we will not go into other issues such as meals and transfers. And reducing inequalities at that moment is what worries me! I got in touch with the math teacher (only math and Portuguese teachers are charged due to IDEB indices) of the same class that I am a teacher, with the coordinator, and with the director and we set up a meeting and decided that they would be distributed - notebooks, pencils, sharpeners, pens, scissors and rulers that existed in the warehouse as leftovers from the 2020 pandemic year that were not offered - at the time of withdrawal of the next APC. The math teacher and I put together smaller kits with permission from the board.

About the internet, since education is public and why not a public internet for everyone? Action implementations are needed to facilitate this access. Utopia? We know of reports from some cities that opened their schools' internet signals to be routed nearby or from schools that released technology rooms for students to use, but in this last example, we have the problem of a lack of outdated equipment or computers, in addition to the problem of distancing and contact, which are measures to avoid contagion of the coronavirus.

The Ministry of Education - MEC increased the power of the internet with the Connected Education Innovation Program, which aims to "support the universalization of high-speed internet access and encourage the pedagogical use of digital technologies in Basic Education".

The Program promotes actions such as helping the school environment to be prepared to receive the internet connection, providing teachers with the possibility of discovering new educational content, and providing students with contact with new educational technologies. Its implementation went through three phases: (1) induction (2017 to 2018) for the construction and implementation of the Program with established goals to reach 44.6% of basic education students; (2) expansion (2019 to 2021) with the expansion of the target to 85% of basic education students and the beginning of the evaluation of results; and (3) sustainability (2022 to 2024) reaching 100% of basic education students, transforming the Program into a Public Policy for Innovation and Connected Education. (website available at http://educacaoconectada.mec.gov.br/o-programa/sobre)

This program is already a reality in many schools in our country and has already been implemented in the municipality of Jardim - MS, but this has not improved access for our students at all, as we have closed schools, working only with internal hours and the signal does not have been released to be routed.

And about the deadlines, which are like never before being part of the lives of teachers and coordinators. Because they experienced the beginning of the pandemic in 2020, when everything was new and we didn't know how long it could last we didn't imagine it would last in 2021, we are plagued by deadlines, reaching the end of the two months we have to search actively for these students. Did they deliver activities? What are they doing? But how will students do? If you don't have internet? Do not have access? Don't have a notebook? Don't have access to quality copies? Deadlines are not new, they have always existed in the reality of schools. What we have are new assignments, a new period of work (all the time) with a lot of emotional, and physical wear - we are working full time, and even financially due to investments in technologies and reduced opportunities.

The teacher needs to charge the student and the family; the coordinator charges the teacher and the family; the director charges the coordinator, the teacher, and the family; the technicians of the secretariats charge the directors; the families that are charged, in turn, also charge the school, the teacher, the director, etc. It's the ripple effect of charges and deadlines.

At the end of the entire cycle, the activities accumulate to be corrected, and the students hand them in (some blank) after numerous calls and meetings (on Google Meet) with their parents. Some schools are theoretically closed to the movement of people because the decrees prevent it, and others serve staggered students. But directors, coordinators, and administrative staff are in schools printing, delivering and receiving activities, calling families, interacting in groups of conversation apps, posting on social networks that they come to pick up their assignments, calling teachers to pick up their APCs to they correct it, and they can't because classes are recorded, attending students, taking classes online during working hours and outside of them as well.

Why not impose working hours? The reality of the public students served exposes situations that are beyond the school's control, as some parents work all day, arriving at their homes in the late afternoon or early evening, and with them the only cell phone for contact with the family, which For this reason, it will only be available to students when their parents or guardians arrive after a long and tiring day at work. It is at night that the greatest interactions with families take place. Some students are also working to help families during the pandemic and have already announced that they are going to stop studying.

However, after presenting some moments experienced, we still need to justify ourselves about comments from the community on social networks and questions such as: Why is the school closed? Why don't teachers want to work or teach? Why don't teachers record videos? Where is the coordination and direction that do nothing?

Discomfort is for everyone. The dissatisfaction and the feeling of not being able to cope and not fulfilling one's duty are enormous for teachers and coordinators. Finally, how to behave and how to meet these demands efficiently? How can we justify this new service format for schools, if we have to justify it? What to say? The online system closes, the planning has a date, and the delivery of the note has a deadline. The student disappears. The family is not satisfied and neither are we teachers/coordinators/school principals. But we ask ourselves what value our lives have. We are dealing with Covid-19 variables, mutations that the medical community is not sure how to avoid, treatments and vaccines are arriving at a slow pace, and on the contrary, the infrastructure and resources of our hospitals do not match the demand.

#### **4 CONSIDERATIONS**

At the end of this report, I understand that "teaching is a complex and challenging activity, which requires the teacher to be constantly willing to learn, question and investigate" (SANTOS, 2018, p. 154). The function performed within a school unit requires many responsibilities, as it is necessary to make the school work. However, Santos (2021):

Despite having a significant number of users with internet access, there are still realities where parents, students, and teachers cannot always keep up with technological development and all of its available resources. Thus, it is essential to make some notes regarding the creation of new educational policies that can contemplate all diversity and demands. It is the role of the states, municipalities, and the government to ensure that the educational process is accessible to everyone. (SANTOS, 2021, p.18)

And the work of the pedagogical coordinator "is equivalent to occupying a position of management in the school, composing, therefore, the management team, it is necessary to address the operation of management, its role in the school, the relationship between its members and the relationships with others, especially with teachers (SOUZA E PLACCO, 2017, p. 14). The role of pedagogical coordinator requires performing specific activities and interacting with all actors in the school setting. Thus, specific training is necessary to remedy deficiencies in their work and collaborate with the performance of their work.

To conclude this article, we took as a reference the document Teaching policies in Brazil: state of the art, by the authors Gatti, Barreto, and André (2011), who declare the importance of continuing education, support for teachers in the exercise of basic education and initiatives of appreciation of work from the perspective of those responsible for the actions themselves. Among the conclusions presented in this document, the authors point out that the continuing education considered more productive are those of long duration, which occur regularly in the schools themselves. But we ask "how to carry out continuous training in the middle of a pandemic?"

Batista and Pesce (2018, p. 97) alert us to the importance of public policies aimed at the continuing education of teachers to dialogue with the needs of teachers to act, originating "from the historical materiality of their teaching routine, far beyond governmental designs, which bow to the demands of multilateral organizations". Therefore, there is a lack of public policies for valuing and training, which has become even more evident in this pandemic period.

#### REFERENCES

BATISTA, Valter Pedro Batista; PESCE Lucila. Educação e Cibercultura: formação docente em contexto de resistência. **Revista Educação em Foco**, Juiz de Fora, v. 23, n. 1, p. 87-110, Jan/abr. 2018.

GATTI, Bernardete Angelina; BARRETO, Elba Siqueira de Sá; ANDRÉ, Marli Eliza Dalmazo de Afonso. **Políticas docentes no Brasil:** um estado da arte. Brasília: UNESCO, 2011.

GOMES, Dulcinéia de Oliveira; ZUIN, Antônio Álvaro Soares. A cultura digital, as TIC e a reconfiguração da relação professor-aluno em Rio Verde - GO. **Revista Práxis Educacional**, Vitória da Conquista, v. 13, n. 25, p. 198-213, mai/ago. 2017.

LINHARES, Ronaldo Nunes Linhares; LINHARES, Maria Conceição Silva Educação e comunicação na sociedade digital: luz e sombras que espelham as vias dicotômicas entre regulação e a emancipação. **Revista Educação em Foco**, Juiz de Fora, v. 23, n. 1, p. 245-268, jan/abr. 2018.

OLIVEIRA, Dalila Andrade. As políticas de formação e a crise da profissionalização docente: por onde passa a valorização? **Revista Educação em Questão**, Natal, v. 46 n. 32, p. 51-74, mai/ago. 2013.

PLACCO, V. M. N. S.; ALMEIDA, L. R. de (Org.). O coordenador pedagógico e o cotidiano da escola. 1. ed. São Paulo: Loyola, 2017.

SANTOS, Débora Silva. Tecnologias de Informação e Comunicação (TICs): uma abordagem no ensino remoto de Química e Nanotecnologia nas escolas em tempos de distanciamento social. **Revista Latino-Americana de Estudos Científico**, v. 02, n.07, p.15-25, 2021.

SANTOS, Rosemary. A formação de formadores na cibercultura e a atuação docente universitária. **Revista Educação em Foco**, Juiz de Fora, v. 23, n. 1, p. 154-174, jan/abr. 2018.

SCHUHMACHER, Vera Rejane Niedersberg; FILHO, José de Pinho Filho; SCHUHMACHER, Elcio. As barreiras da prática docente no uso das tecnologias de informação e comunicação. **Revista Ciência e Educação**, v. 23, n. 3, p. 563-573, 2017.

TARDIF, Maurice. A profissionalização do ensino passados trinta anos: dois passos para a frente, três para trás. **Educação & Sociedade**, Campinas, v. 34, n. 123, p. 551-571, abr-jun. 2013. Disponível em: <a href="http://www.cedes.unicamp.br">http://www.cedes.unicamp.br</a>.